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# Water Quality Program Policy

## *Chapter 1:*

## *WQP Policy 1-11*

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*Effective:* August 1993

*References:* Federal Clean Water Act  
Section 303(d)  
40 CFR 130.7  
40 CFR 25

*Revised:* March 2001

## **Assessment of Water Quality for the Section 303(d) List**

**Purpose:** The state is required under Section 303(d) of the federal Clean Water Act (CWA) and EPA's implementing regulations (40 CFR 130) to prepare a list containing waterbody segments that do not meet state surface water quality standards. Unlike other states, Washington's surface water quality standards cover contaminated sediments as well. The list contains 'Impaired Waterbodies' (Water Quality Limited Segments) defined in 40 CFR 130.2(j). This list was last prepared in 1998. The next list is required in April of 2002 and at four year intervals after that. The state is required to prioritize and schedule all waterbody segments on the list and complete a total maximum daily load (TMDL) for each. However, TMDL's do not need to be done for waterbodies that attain and maintain water quality standards prior to doing a scheduled TMDL. Guidance provided by the EPA does not address details of many of the issues related to decisions that must be made to prepare the list. This guidance was developed by Ecology to address these issues and, in combination with other guidance for data quality control, constitutes the 'List Methodology' required by EPA.

**Application:** To Water Quality Program staff when conducting assessments for the Section 303(d) List. To stakeholders when developing monitoring programs and preparing data for submittal to the listing process.

### **1. General Approach**

The state is now required under Section 303(d) of the amended Clean Water Act (CWA) to prepare a four-part list every four years containing waterbody segments that do not meet state surface water quality standards, National Toxic Rule or Human Health Criteria. Guidance on how to assess information for impaired water bodies has been developed in this document and interested parties are notified to submit appropriate water quality and related data to Ecology.

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Ecology staff will review and evaluate the new information to make revisions to the last list approved by EPA. Ecology assumes that the current water quality standards will still be applicable in April of 2002. Consequently, data will be evaluated against the current water quality standards. Ecology will propose an updated list for public comment that incorporates new data and information.

Because the list requires federal approval, the federal regulations for public notice requirements (40 CFR Part 25) will be used to solicit information collected by interested and affected parties for revision of the proposed list. The requirements include notification, access to proposed documents, opportunity to provide comments and serious consideration of and response to those comments. Additional consultation will occur with Tribes and irrigation districts in compliance with MOAs with them, and also with EPA to ensure consistency with federal requirements. Information received during this review period will also be assessed against the state water quality standards using this guidance for identifying impaired water body segments for the proposed Section 303(d) list.

The criteria in this guidance were developed to identify only those waterbody segments for which there is good documentation that water quality standards are not being met. Waterbodies with standards violations because of natural conditions and with no significant human contribution will not be proposed for listing. We will not exercise the federal option to include waters that currently meet standards but are considered likely to be impaired by the next listing effort in 2006.

Criteria were also developed to guide assignment of impaired water bodies to the appropriate part of the required four-part list. Only those placed on Part 1 will be prioritized and scheduled for doing TMDLs. Part 2 listings will include impairments as a result of non-quantifiable pollution. Segments with existing TMDLs will be evaluated and placed on Part 3 if the TMDL is considered effective. Part 4 listings will be those segments expected to meet WQ standards due to enforceable controls by the next listing in 2006.

The system to identify the extent of impaired segments or grids including contaminated sediments has been revised. Data requirements including format and documentation have also been revised.

## **2. Tribal Coordination**

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In accordance with the Centennial Accord, this policy is intended to facilitate intergovernmental cooperation between the state and the federally recognized tribes in Washington State in the development of the state's Section 303(d) lists.

Tribes have independent authority for setting water quality standards and implementing regulations for waters on reservation land under the Clean Water Act, and Washington State is bound under the Supremacy Clause of the United States Constitution, article VI; c1.2, to carry out the provisions of the United States Treaties and relevant federal court rulings. This policy is not intended to and does not enlarge, diminish, or define the jurisdiction of the state or the tribes.

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Nor does this policy limit the right of the state or any tribe to act in other forums to protect its rights.

WQP staff will cooperate on a government-to-government basis with the staff of each interested tribe with affected natural resources during the following three steps in the development of the state's Section 303(d) list: 1) policy development; 2) data assessment, and 3) preparation of responsiveness summaries. Cooperation on other Section 303(d) listing tasks such as gathering data, public involvement, and list submittal to EPA may be negotiated as desired.

If a tribe is interested in identifying impaired waters on-reservation in coordination with the state, the water quality program staff will cooperate with tribes who enter into an agreement to: a) use the state's 303(d) process for a joint state and tribal submittal of 303(d) waters on reservation, or b) establish a tribal listing process. However, a tribe may elect to work directly with EPA to develop an on-reservation list and need not cooperate with the state.

The goal of the Water Quality Program is to make listing decisions by mutual agreement whenever possible for off-reservation waters through timely sharing of information, clarification, and discussion. Disagreements will be primarily handled at the staff level. The state and each individual tribe are responsible for making their own final listing recommendations to EPA within its respective delegated Section 303(d) program, insofar as program funding permits.

Areas of specific cooperation during the Section 303(d) listing process that are described in writing in a signed agreement with a tribe within Washington State will supplement this policy.

At this time, the Puyallup and Chehalis tribes have adopted their own water quality standards for on-reservation waters. The Tulalip Tribe now has the delegated authority to adopt standards. The Lummi, Spokane, and Yakama tribes are in the process of establishing such authority.

### **3. Four-Part List Format and Content Based on Federal Regulatory Amendments Effective October 2001**

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Within the federally required lists, Ecology will use additional sub-parts to track certain impaired waters and associated efforts to protect and restore them.

Part 1. A water body is impaired by one or more pollutant – no effective TMDL or other acceptable control measures are in place, which would result in attaining standards by the next listing cycle. Listings based on bioassays for which a clear pollutant cause is not identified will be included in this part. A TMDL is required to guide efforts to bring the waterbody back into compliance. The basis to schedule all TMDL studies is found in Section 7 of this document.

Part 1a. Water bodies on Part 1 of the list without a TMDL but there are enforceable controls in place actively moving the waterbody towards compliance with the standards. Compliance is expected to take five or more years so these cannot be placed on Part 4. This list is for internal tracking at the state level and can be used to lower the priority for doing associated TMDLs. Examples are impairments caused by forestry but subject to

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the permanent rules adopted under the Forest and Fish Report and contaminated sediment areas undergoing clean up under CERCLA, MTCA or RCRA.

Part 1b. All other impaired water bodies that require a TMDL.

Part 2. A water body is impaired by pollution rather than a quantifiable pollutant. Examples are blocked culverts and degraded habitat due to altered stream flows. No TMDL is required, however other actions or programs may be identified that could bring about compliance.

Part 2a. Waterbody on Part 2 of the list where programs or activities are in place that are likely to lead to compliance over time.

Part 2b. Waterbody on Part 2 of the list where the human caused alteration is so extensive or permanent that improvement or recovery is dependent on major public action or policy changes. Examples are impaired habitat conditions from restricted channel structure due to an adjacent state highway or dams.

Part 2c. All other waterbodies impaired by pollution.

Part 3. A water body is impaired by point source, nonpoint source or any combination but an approved, 'effective' TMDL has been completed and is in place with substantial progress occurring. If progress is insufficient, the water body must be placed back on Part 1 and re-prioritized for a new or revised TMDL. An effective TMDL has active implementation occurring and monitoring is being done consistent with the implementation plan. It also includes regular review of the TMDL, monitoring results and implementation with some mechanism in place such as permit re-issuance or adaptive management to respond to new information and changed conditions to ensure that progress is carried forward.

Part 4. A water body is impaired but technology-based effluent limitations or other enforceable controls (state or federal) will bring about attainment of standards by submission of the next list in 2006. No TMDL is required because improvement is expected soon and is assured by routine application of existing program activity. Modeling may be required to show that attainment of water quality standards is likely. This list is expected to be short due to the short time frame for recovery of water quality (within four years). CERCLA, MTCA or RCRA sites with signed Records of Decision may be placed on this list if implementation of controls is expected to bring a site into compliance with standards by 2006. Clean Lakes Restoration Process Phase II areas may be placed on this list if implementation of controls is expected to bring the area into compliance with standards by 2006.

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## 4. Considerations for Data Quality and Evaluation

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### a. General Requirements

Data submittal – Use of common format for submittal and addition of an information form verifying certain data QA/QC elements. (see Appendix A)

Data QA/QC – Quality assurance requirements must be met by all data used as a basis to support listing, or not listing a waterbody segment. They also apply to data submitted during the public review process in response to the draft listings. Sampling and analysis must be conducted under a documented quality assurance plan. Guidance for preparing quality assurance plans is available from Ecology (Guidelines for Preparing *Quality Assurance Plans* for Environmental Studies, publication #01-03-003) and (Sediment Sampling and Analysis Plan Appendix: Guidance on the Development of Sediment Sampling and Analysis Plans Meeting the Requirements of the Sediment Management Standards, December 1995 Draft), Department of Natural Resources (TFW-AM9-99-005, DNR publication 107) and EPA (publication EPA 841-B-96-003). (A form to document the basic elements of data quality assurance can be found in Appendix B and is the minimum necessary for data submittal. Refer to Appendix C for more details on sediment data)

Sample representation – Sample locations need to be representative of the waterbody conditions within the applicable segment. Sampling was conducted to represent the waterbody segment in general and avoided, to the extent possible, isolated and limited conditions.

Data sample location – Data submittals should include the applicable township, range and section. Water column samples should include either the longitude and latitude or a clearly marked map. Contaminated sediment samples should include the longitude and latitude for the specific sampling location.

Data sample size – Unless addressed in specific guidance below, a segment or grid will only be evaluated for listing if there are 10 or more total data points for the parameter in question. Sediment data sample sizes are addressed in Appendix C. (The data sample criteria required to determine that a segment or grid is impaired are covered in Section 5 of this guidance.)

Associated information – Where possible, submittals should include documentation of associated field conditions such as existing beneficial uses, adjacent land uses, and suspected and likely source(s) of impaired condition.

Waterbody Segments – Open water segments are based on a rectangular grid 4.5 minutes by 4.5 minutes. Contaminated sediment listings will be assigned to the appropriate quarter section of that rectangular grid. Segments for rivers and streams are the portion of the waterbody lying within the identified section of a township and range and apply to both water column and sediment listings. However, sediment listings may further divide the section to the appropriate  $\frac{1}{4}$ ,  $\frac{1}{4}$  section.

### b. Specific Data Requirements

1. Sampling was conducted to represent the waterbody segment in general and avoided, to the extent possible, isolated and limited conditions.

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2. Laboratory samples were analyzed at a state-accredited laboratory (per WAC 173-050 and Ecology Executive Policy 1-22). Field kits using chemical tests are generally not acceptable, however, if appropriate QA/QC information is provided, we may be able to use such information. Use of the Winkler titration method for dissolved oxygen measurement is acceptable from a laboratory that is not accredited by the state, if the detectable difference is less than or equal to 0.2 mg/l (see Standard Methods for the Examination of Water and Wastewater for method details).
3. A minimum of three samples is required for toxic pollutants in the water column.
4. When available, testing should be by an approved method with a quantitation limit that yields reliable analytical results at concentrations less than the criterion. Analytical results below the method detection limit will not be evaluated. For guidance on quantitation limits refer to Tables VI-2 and VI-3 as updated in the Ecology Permit Writer's Manual, ECY Publication # 92-109.
5. Field instruments that were used do not require chemical tests for operation and were operated and calibrated according to the manufacturer's recommendations, or other acceptable, demonstrated method. Calibration information should be submitted along with the data.
6. Data were reviewed and documented to assure that the objectives of the quality assurance plan were met.
7. Data collected over ten years ago, before July 1991 will not be used for new listings, unless specific information is identified and/or rationale can be posed that shows these older data likely represent current conditions. 1998 listings based on data collected before July 1991 and with no new information submitted will be retained if the old data otherwise meets the current listing criteria.
8. Parties submitting information collected by others must also include a statement about, and documentation showing that the required quality assurance objectives were met.

**c. Data Evaluation and Interpretation Guidance**

(Note: for specific contaminated sediment guidance refer to Appendix C.)

1. Measurements of instantaneous concentrations are assumed to represent the averaging periods specified in the state surface water quality standards for acute and chronic criteria.
2. When method quantitation limit is less than the criterion, use available analytical results.
3. When method quantitation limit and detection limit are greater than the criterion, use available analytical results (see example below).
4. When method quantitation limit is greater than the criterion but detection limit is below the criterion and analytical results are less than the quantitation limit but above the detection

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limit, the average of the three highest values will be used to compare against the applicable criteria (see example below).

Concentration Scale	10-		
	9-	<b>Q</b>	<b>Q</b>
	8-		<b>S</b>
	7-	<b>S</b>	<b>S</b>
	6-		<b>S (average)</b>
	5-		
	4-	<b>D</b>	
	3-		<b>C</b>
	2-		<b>S</b>
	1-	<b>C</b>	<b>D</b>
	0-		
		Example 3	Example 4
Q = Quantitation Limit		S = Sample Value	
D = Detection Limit		C = Criteria	

5. Decisions on fish stock status for listing waters under the narrative standards will generally be based on the most recently published information from federal, tribal, and state fisheries management agencies. New data submitted for these listing decisions will be assessed by Ecology staff in consultation with the fisheries management agencies. Final decisions on the support of designated uses, for purposes of this list, will be made by Ecology.
6. Bacteria sampling will allow grouping of same-season data in consecutive years as well as within seasons however, averaging should be done so that periods of non-compliance are not masked.
7. Sample data of fecal coliform from marine waters will require a minimum of 30 samples from a systematic random sampling survey or 15 samples from a storm event sampling survey to calculate the geometric mean. If sample sizes are smaller, data from two single samples can be compared to the criterion for the geometric mean exceedance set for 10% of the samples used (e.g. 43 cfu/100mL)
8. Sample data of fecal coliform from freshwater will require a minimum of five samples collected within a 30-day period to calculate the geometric mean or 15 samples from a storm event sampling survey to calculate the geometric mean. If sample sizes are smaller, data from two single samples can be compared to the criterion for the geometric mean exceedance set for 10% of the samples used (e.g. 200 cfu/100mL)
9. Under any given situation, Ecology reserves the right to make listing decisions that are not in complete accordance with this policy. The ultimate judgement in listing decisions will be based on whether designated uses are being supported as determined by the water quality standards and relevant federal regulations or guidance.

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## 5. Criteria Used to Determine Current Water Quality Limited Segments

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Data from a segment must meet one of the following criteria to show impairment:

1. Fecal coliform: organism levels exceed either one of the two tests.
2. **Grab samples** for temperature and dissolved oxygen have at least two measurements on separate days that violate the applicable numeric state surface water quality standards and a minimum of 10% or more of all measurements during the critical period violate the standards.
3. Measurements of pH, turbidity and total dissolved gas show at least two measurements on separate days **and** 10% or more of the total measurements violate the numeric state surface water quality standards.
4. Measurements of temperature, dissolved oxygen, pH, turbidity, and total dissolved gas with only one measurement in a segment violating the applicable numeric standard in #2 and #3 above, may be combined with data from the adjoining upstream or down stream segment. The pooled data will then be evaluated for listing as an extended segment.
5. For water column samples of toxic pollutants, a minimum of one sample exceeds the numeric state water quality criteria or the national toxic rule criteria (40 CFR Part 131) for human health and samples are from the most recent three-year period that data has been collected.
6. Contaminated sediment: Puget Sound and non-Puget Sound marine sediments are evaluated for chemical and biological compliance using criteria specified under the Sediment Management Standards (Chapter 173-204 WAC). Freshwater sediments are evaluated using biological tests only. Low salinity sediments are evaluated on a case-by-case basis. Appendix C details the contaminated sediment 303(d) listing and delisting methodology.
7. Bioassay tests: any water column samples which show adverse effects as measured by a statistically significant response relative to a reference or control (WAC 173-201A-040(2)). These tests will be evaluated for use in listing by Ecology staff on a case-specific basis consistent with WAC 173-201A-040. For sediment samples, see Appendix C.
8. Fin fish muscle tissue samples and whole shellfish tissue samples that have at least two single-fish samples or one composite sample (at least three separate fish) that exceed the criteria calculated for human health impacts based on EPA's bio-concentration factors and water column criteria established under the national toxic rule (40 CFR Part 131). Sample data from two adjoining segments may be grouped for evaluation.
9. Fish and shellfish advisories issued by local or state health departments will be used to indicate the impairment of a beneficial use when the following circumstances are met:

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- 1) The advisory is based on fish, shellfish, sediment, or water data specific to the waterbody segment being evaluated (Shellfish advisories due to proximity to wastewater treatment discharges with no supporting local data or due to short-term conditions, such as storm events, will not be listed)
  - 2) The risk assessment parameters or other assumptions used by the agency issuing the advisory are cumulatively equal to or no more protective than those incorporated into human health-based water quality criteria (e.g., toxics or pathogens).
10. Shellfish bed areas closed under the Washington Department of Health's Shellfish Policy **and** local water quality samples show fecal coliform standards are violated.
11. The narrative standards for impairment of characteristic uses will be interpreted from three pieces of information:
- 1) documented environmental alteration using a generally accepted method based on site specific information, with literature thresholds appropriate to the situation or with reference sites, **and**
  - 2) documented impairment of a characteristic use on the same waterbody segment, **and**
  - 3) identification of a direct human caused contribution to the environmental alteration.
12. The narrative standard for impairment of characteristic uses of fish and fish habitat or other aquatic life due to altered stream flows will be interpreted from the four pieces of information shown below. Listing for inadequate or changed water flows will be based only on considering the needs of instream designated uses, and not on out-of-stream uses or needs.
- 1) Instream flow measurements, including but not limited to hydro-graphs (synthesized hydrographs need to be based on actual flow measurements from the specific stream); **and**
  - 2) documentation of how the specific stream's fish habitat is related to changed flow (e.g. scour from increased peak flows, Instream Flow Incremental Methodology, Toe-Width, minimum flows set in rule or as conditioned by water rights, or other methods that may be appropriate in cases such as falling water or wide delta areas); **and**
  - 3) documented impairment of a fisheries use on the same waterbody segment (e.g. as shown by SASSI, WDFW, or Tribal data, NWPPC Sub-basin plans, Ecology Basin Assessments, etc.); **and**
  - 4) identified human contribution to the reduction of instream flows below the acceptable level indicated (e.g. evidence of water rights or diversions above the water body segment).

NOTE: In some cases where submitted data does not meet the listing criteria, **or** questions over data QA/QC prevent using the data for listing Ecology may determine that the apparent condition of the waterbody still raises concern. Although not on the 303(d) List, Ecology will separately track these waterbodies and look for opportunities to pursue additional sampling or to incorporate the waterbody into existing studies or to find other means to confirm or address the suspected problem. These waterbodies would likely be included in the next 305(b) report as only partially supporting uses.

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**6. Criteria to Exclude Waters from the List or to Delist**

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Waterbody segments can be removed from the list for any one of the following:

1. More recent data meeting the same QA/QC requirements to list shows that the water quality standards are being met. New data should at a minimum be collected at about the same time of year as the monitoring that was used as a basis to list the water and should also include the most critical period for the parameter.
2. Where standards **or** listing criteria have changed since the last list, data shows that the new standards or criteria are being met.
3. More sophisticated analysis using calibrated models of previous data shows that the standards are being met.
4. Flaws in the original assessment are identified that show they were in fact met.

Proposed waterbody segments or grids will be excluded from listing based on the following:

1. Numeric temperature and dissolved oxygen exceedances are shown to have occurred when air temperatures at that location during the warmest seven-day period of the year exceeds the 90<sup>th</sup> percentile of the annual seven-day average daily maximum air temperature values as calculated over the historic record.
2. Documentation of natural conditions as the cause of the standards violation. The justification should be well documented as part of the list submittal to EPA. Justification should address the natural source of the pollutant and explain and document why human causes can be ruled out as the cause of the violation. Human-caused source can generally be ruled out where the excursions beyond criteria would still occur if the human caused sources were not present. In the case of temperature and dissolved oxygen human sources cannot contribute more than is allowed in the standards. Documentation should include modeling results, related studies and best professional judgement.
3. Shellfish growing areas approved for unconditional harvest by the State Department of Health will not be listed for bacteria even if adjacent water column sampling indicate violations. Only the open water grid with the bacteria violation will be listed.

**7. Prioritization of Waterbodies on Part 1 for TMDL Studies**

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Waterbodies and associated parameters on the 2002 list that were also on the 1996 list will have TMDL studies completed by the year 2014 consistent with the time requirements of the Memorandum of Understanding signed by EPA and Ecology in 1998. New waterbodies or parameters listed in 1998 or on Part 1 of the 2002 list will need to be scheduled by 2010 and 2012 respectively to comply with the new federal TMDL rules. The schedule for initiating these TMDL studies may be extended up to five years if proper justification is provided to EPA during submittal of a revised List.

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Between the 2002 list and the year 2017 (ten-year period with some extensions for five years), Ecology will complete three full rotations through the five-year watershed cycle. This will provide three periods for re-prioritizing TMDL schedules in each Water Quality Management Area in response to new information and opportunities. Some TMDLs will be done out of cycle based on a threat to public health such as drinking water, on ESA issues or on unique opportunities to coordinate with other efforts (such as watershed planning processes or private initiatives).

Listed waterbodies will be logically grouped within sub-basins of a Water Quality Management Area according to the problem, workload efficiencies, capabilities and local opportunities for implementation. Initial scheduling of TMDL's will be done by each region based on the watershed cycle and then merged to form the total list. Consultation on priorities will be done with interested tribes.

TMDL studies are a key tool in the work to clean up impaired waters. Other Water Quality Program tools are permits, monitoring programs and financial and technical assistance. Under the Toxic Cleanup Program and the Sediment Management Standards there are other tools to further address contaminated sediment issues.

### DEFINITIONS:

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CFR – Code of Federal Regulations  
CWA – Clean Water Act  
EPA – U.S. Environmental Protection Agency  
ESA – Endangered Species Act  
TMDL – Total Maximum Daily Load  
WLA – Waste Load Allocation assigned to point sources  
LA – Load Allocation assigned to nonpoint sources  
WAC – Washington Administrative Code  
WQP – Water Quality Program